

SAMS

CP21 08979

COMPUTERFACTS™

TECHNICAL SERVICE DATA

ATARI® MODEL 1025 PRINTER



FEATURES: COMPLETE SCHEMATICS • PRELIMINARY SERVICE CHECKS • TROUBLESHOOTING TIPS •
EASY-READ WAVEFORMS • REPLACEMENT PARTS LISTS • SEMICONDUCTOR CROSS-REFERENCE

PRELIMINARY SERVICE CHECKS

This data provides the user with a time-saving service tool which is designed for quick isolation and repair of printer malfunctions.

Check all interconnecting cables for good connection and correct hook-up before making service checks.

Replacement or repair of CPU board or connectors may be necessary after the malfunction has been isolated.

TEST EQUIPMENT AND TOOLS

TEST EQUIPMENT

Digital Volt/Ohm Meter
Scope
Logic Probe

TOOLS

Phillips Screwdriver
Small Screwdriver
Low Voltage Soldering Iron
Desoldering Iron

REPLACEMENT PARTS AND DESCRIPTION

ITEM NO.	DESCRIPTION
D1	Diode, GP15B
D2	Diode, GP15B
D5	Diode, GP15B
D6	Diode, GP15B
F1	Fuse, 1.75A @250V Fast Acting
F2	Fuse, 1.75A @250V Fast Acting
M1	Print Head
M2	Carriage Motor
M3	Line Feed Motor
OSC1	Crystal, 7.37MHz
Q1	IC, HA17805P
Q8	IC, iP8051
T1	Power Transformer, 4LP-45191-137

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The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co. as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co. by the manufacturers of the particular type of replacement part listed.

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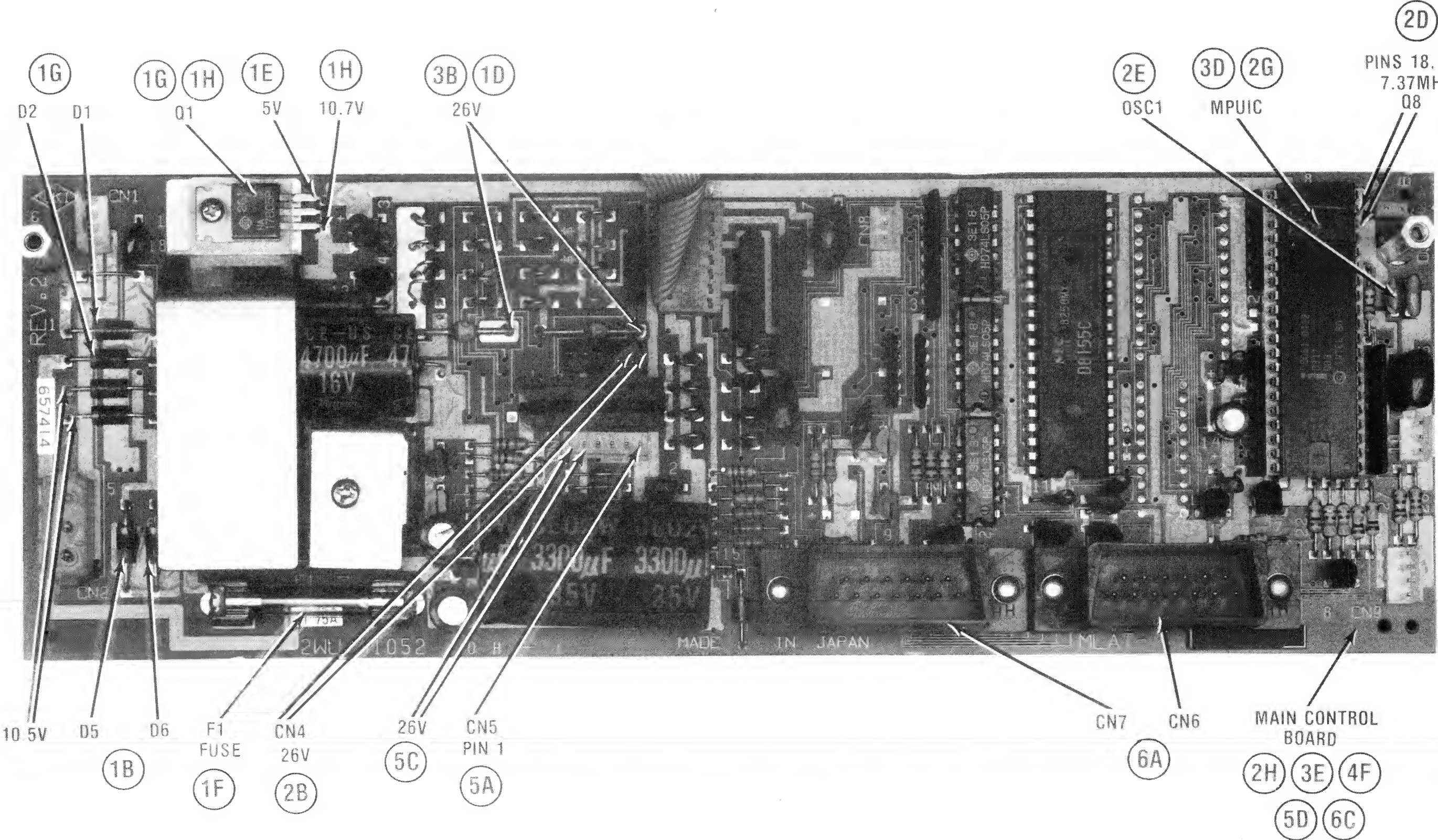
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PRELIMINARY SERVICE CHECKS (Continued)



MISCELLANEOUS ADJUSTMENTS

FIRST CHARACTER PRINTING POSITION ADJUSTMENT

Loosen screws fastening Carriage Motor to bottom cover. Turn motor assembly a little one way or the other so that when the power is turned ON, the print head returns and stops at the home sensor position within tolerance, see Figure 1. If changing position of motor assembly does not correct the print position, change the engagement position of the carriage synchro-belt on the pulley by one or two teeth.

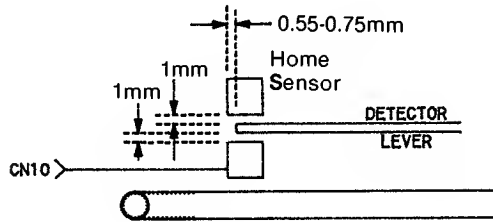


Figure 1

PLATEN/PAPER SEPARATOR ADJUSTMENT

Remove the upper cover, loosen the paper separator screws. Adjust the clearance between the platen and the paper separator for approximately 0.5mm. Tighten the paper separator screws, see Figure 2.

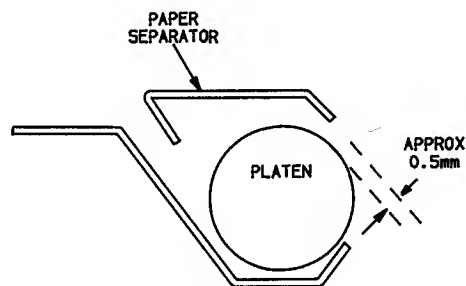


Figure 2

PRINTHEAD ADJUSTMENT

Print head adjustment should be performed after repair of printer mechanism, carriage assembly frame, or print head. Loosen carriage shaft screws on the sides of the printer mechanism. Move carriage shaft forward or backward until gap between platen and print head is between 0.45mm and 0.5mm.

PRELIMINARY SERVICE CHECKS (Continued)

SERVICE CHECKS

MATCH THE NUMBERS ON THE INTERCONNECTING DIAGRAM AND PHOTOS WITH THE NUMBERS ON THE SERVICE CHECKS TO BE PERFORMED.

①

POWER SUPPLY

- (A) If the Printer is dead check Fuse F2.
- (B) Check Diodes D5 and D6 for shorts.
- (C) If Diodes D5 and D6 are good, check Power Transformer (T1) by substitution.
- (D) Check for 26V at anode of Diodes D26 and D46. If 26V is missing check Main Control Board by substitution.
- (E) Check for 5V at pin 2 of Regulator IC (Q1), if 5V is missing check Fuse F1.
- (F) If Fuse F1 is open, check Diodes D1 and D2 for shorts.
- (G) If Diodes D1 and D2 good, check Regulator IC (Q1) for a short.
- (H) Replace Fuse F1 and check for 10.5V at pin 1 of Regulator IC (Q1).

②

PRINTER CARRIAGE ASSEMBLY DOES NOT MOVE

- (A) Turn Printer OFF, move carriage assembly to the right. Turn Printer ON. Carriage assembly should move to Home position.
- (B) If carriage assembly does not move, check for 26V at pins 5 and 6 of Connector CN4.
- (C) If 26V is missing, check the power supply.
- (D) If the 26V is present, check for 7.37MHz at pins 18 and 19 of the CPU IC (Q8).
- (E) If frequency is not correct, check Crystal (OSC1) by substitution.
- (F) Check resistances of Carriage Motor winding (M2).
- (G) Check CPU IC (Q8) by substitution.
- (H) Check the Main Control Board by substitution.

③

PRINT HEAD WILL NOT PRINT

- (A) Check the print head cable Connector CN3 for good connection.
- (B) Check for 26V at anode and cathode of Diode D26.
- (C) Check resistances of print head.
- (D) Check CPU IC (Q8) by substitution.
- (E) Check Main Control Board by substitution.

④

MISSING DOTS IN THE PRINT PATTERN

- (A) Clean print head face.
- (B) Check print head Connector CN3 for good connection.
- (C) Check the flat cable for broken or pinched lead.
- (D) Disconnect print head cable and check resistances of the print head.
- (E) Check the print head by substitution.
- (F) Check Main Control Board by substitution.

⑤

LINE FEED WILL NOT OPERATE

- (A) Check Connector CN5 for good connection.
- (B) Check resistances of Line Feed Motor (M3).
- (C) If the resistances of Line Feed Motor are good, check for 26V at pins 5 and 6 of Connector CN5.
- (D) Check Main Control Board by substitution.
- (E) If Line Feed Motor is erratic or stops, check the gear assembly on the left hand side for broken gears.

⑥

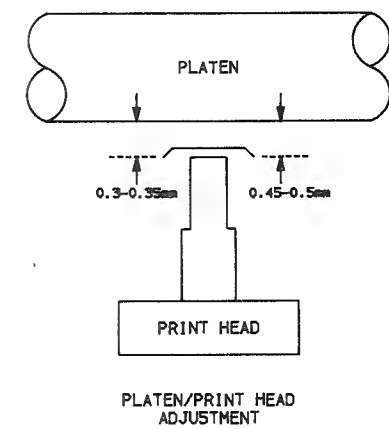
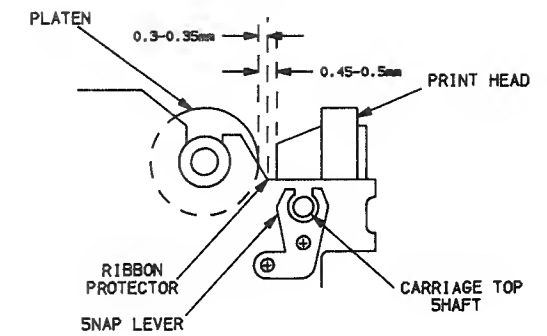
PRINTER WILL NOT PRINT BY COMPUTER COMMAND

- (A) Check Connector CN6 or CN7 whichever is used for good connection.
- (B) Check the cable between the Computer and the Printer by substitution.
- (C) Check Main Control Board by substitution.

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PRELIMINARY SERVICE CHECKS (Continued)

DISASSEMBLY INSTRUCTIONS

UPPER COVER REMOVAL

Remove platen knob, remove top cover by pulling upwards. Loosen two screws holding switch assembly and slide switch assembly backwards. Remove two screws from inside the front of upper cover. Tip upper cover back and lift upper cover from Printer.

PRINT HEAD REMOVAL

Remove upper cover, slide carriage assembly to right end of Printer. Carefully remove print head cable plug from flat cable connector located on the carriage assembly frame beneath the print head. Push down print head lock lever and lift head straight up from the carriage assembly frame.

PRINTER MECHANISM REMOVAL

Remove Printer upper cover. Slide carriage assembly to far right. Disconnect print head cable plug and remove print head. Remove the flat cable connector screw and the connector from carriage frame assembly. Cut plastic tie-wraps that fasten flat cable to side of printer mechanism. Disconnect all connectors attached to P.C. board. Remove P.C. board. Set Printer up side down on a soft cloth and remove four screws holding mechanism to the bottom of cabinet. Carefully remove bottom case and set printer mechanism upright.

MAIN CONTROL BOARD REMOVAL

Remove upper cover assembly. Disconnect all connectors from Main Control Board. Remove print head assembly. Remove flat cable connector from carriage frame assembly. Cut the tie-wrap which fastens the flat cable to the right side of printer mechanism. Remove two screws holding Main Control Board. Lift Main Control from Printer.

PLATEN REMOVAL

Remove cabinet top cover. Lift scale bar to highest position. Remove two screws holding paper separator and remove paper separator. Remove C ring and platen bearing from right end of platen. Pull left bearing side ways from side plate. Turn platen bearing 90° and pull out platen.

CARRIAGE MOTOR REMOVAL

Remove the upper cover. Remove the Main Control Board, disconnect Connector CN4. Cut the tie wraps securing the Carriage Motor leads. Remove two screws fastening the Carriage Motor to the bottom cover. Remove carriage belt from Carriage Motor pulley. Lift Carriage Motor from Printer.

PAPER FEED MOTOR REMOVAL

Remove upper case. Remove Main Control Board. Remove two phillips screws fastening Paper Feed Motor to left side of printer mechanism. Remove Paper Feed Motor from Printer.

PRELIMINARY SERVICE CHECKS (Continued)

PREVENTATIVE MAINTENANCE

ENVIRONMENT

Computers perform best in a clean, cool area that is below 80 degrees Fahrenheit and free of dust and smoke particles. Even though home Computers are not affected by cigarette smoke as much as commercial Computers are affected, it is better to maintain a smoke-free area around the Computer. Do not block cabinet vents of any of the Computer system; Computer, Monitor, Printer, or other power devices.

ELECTRICAL POWER

Variations in the line voltage can affect the Computer. Try to avoid these fluctuations by using an AC receptacle that is on a power line not used by appliances or other heavy current demand devices. A power-surge protector, power-line conditioner, or non-interruptible power supply may be needed to cure the problem. **Do not** switch power On and Off frequently.

KEYBOARD

Liquids spilled into the Keyboard can ruin it. Immediately after a spill occurs, disconnect the Computer power plug from AC power outlet. Then, if circuitry or contacts are contaminated, disassemble the Keyboard and carefully rinse the Keyboard printed circuit board with distilled water and let it dry. Use a cotton swab to clean between the keys. Use a non-abrasive contact cleaner and lint-free wipers on accessible connectors and contacts.

DISK DRIVES

Clean the read/write heads of the Disk Drives about once a month or after 100 hours usage. Use only an approved head cleaning kit.

Handle carefully to preserve proper disk head alignment. A sudden bump or jolt to the Disk Drives can knock the disk head out of alignment. If the disk drive must be transported, place an old disk in slot and close door during transport.

Store disks in their protective covers and never touch the disk surface. Observe the disk handling precautions usually found on the back of disk protective covers.

PRINTERS

Carefully vacuum the Printer regularly. Wipe surface areas clean using a light all-purpose cleaner. Do not oil the machine. The oil will collect abrasive grit and dust. The dust will act as a blanket. This can cause components to overheat and fail.

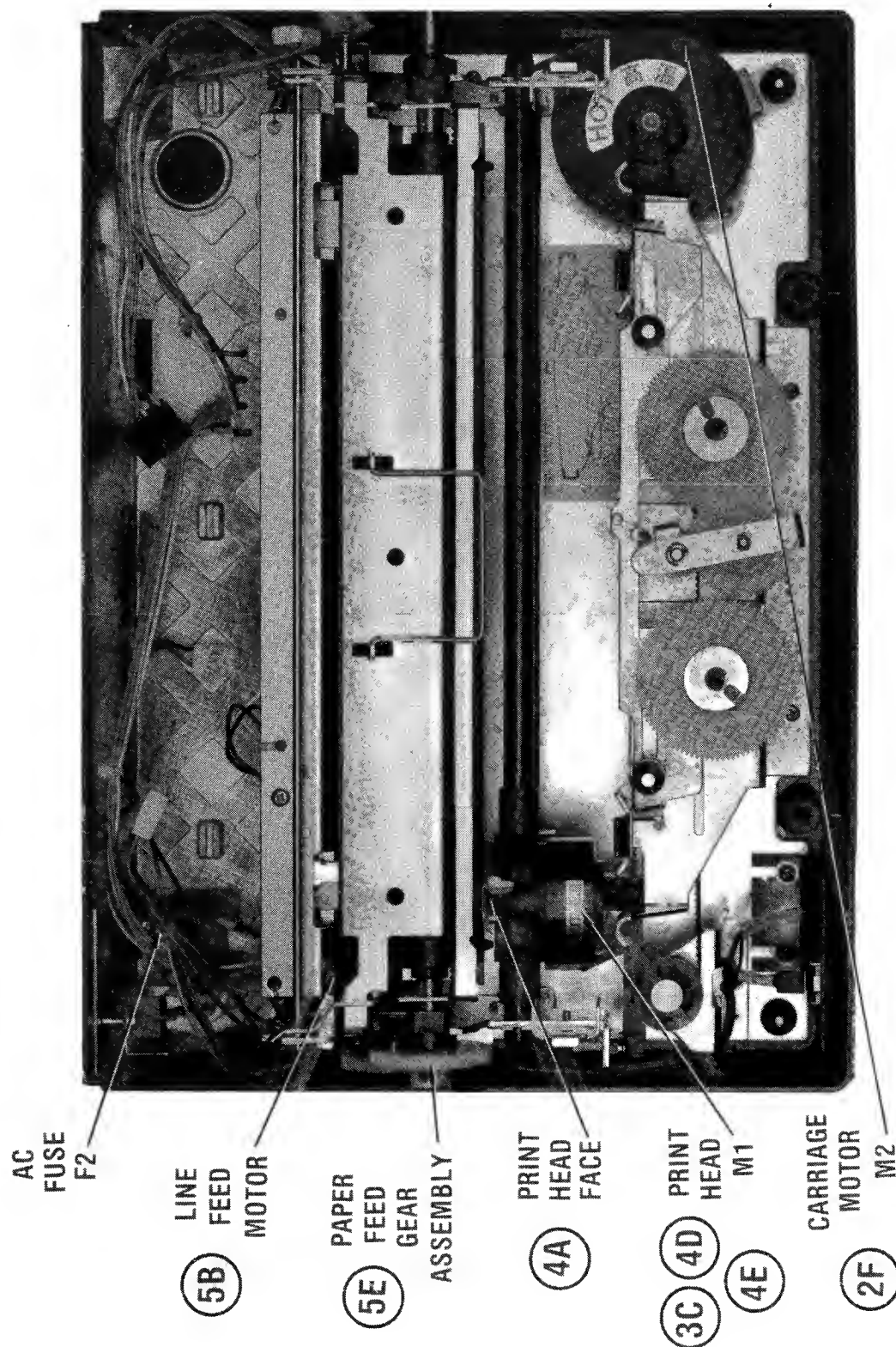
STATIC ELECTRICITY

Static electricity discharge can affect the Computer. In order to minimize the possibility, use anti-static mats, sprays, tools and materials, and maintain good humidity in the Computer environment.

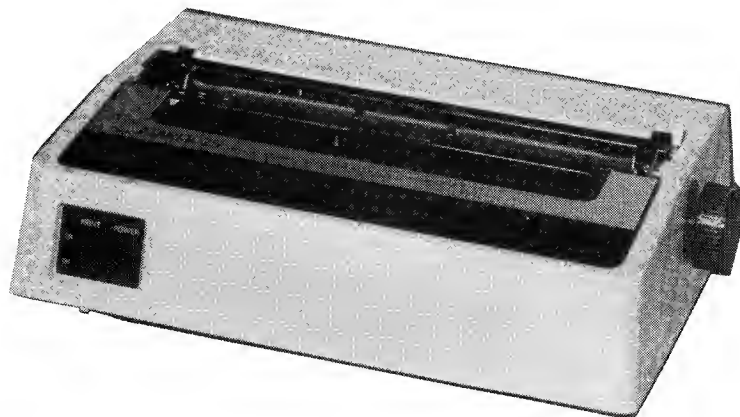
MONITOR

Use an isolation transformer with any Monitor that does not come as part of the system since some Monitors use a HOT chassis (chassis connected to one side of the AC line). The face of the Monitor should never be left on for long periods of time at high brightness level except when pattern is being changed periodically. Use caution when cleaning anti-glare screens, to preserve the glare-reduction feature.

PRELIMINARY SERVICE CHECKS (Continued)



CHASSIS-TOP VIEW



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PRELIMINARY SERVICE CHECKS

ENCLOSED

SAFETY PRECAUTIONS

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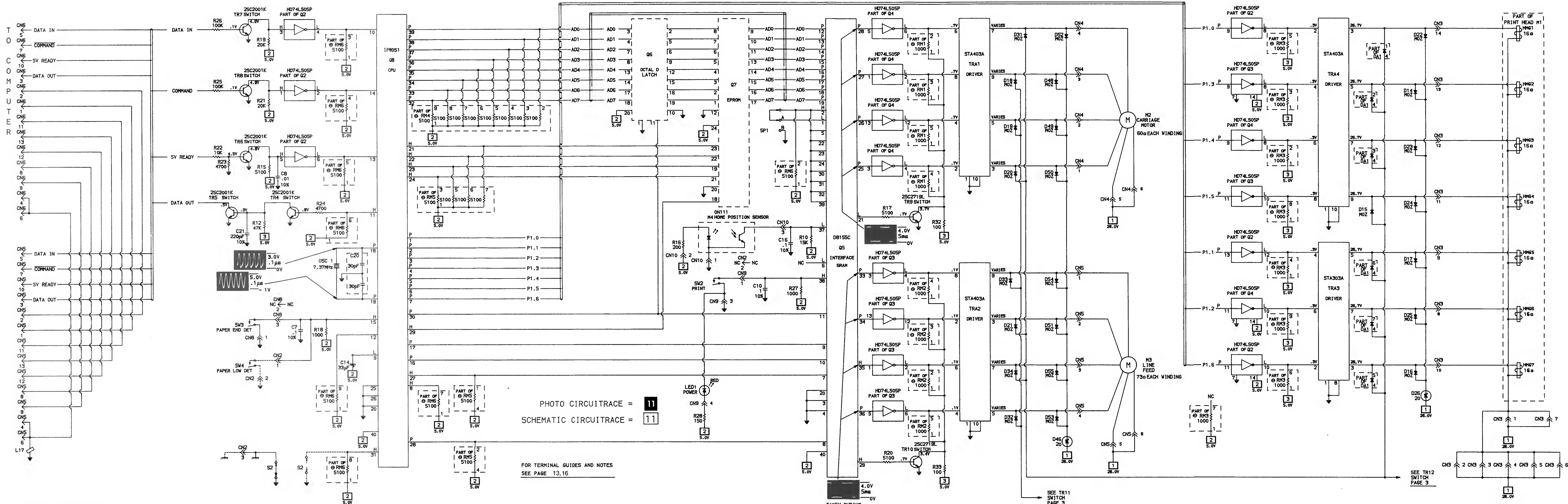
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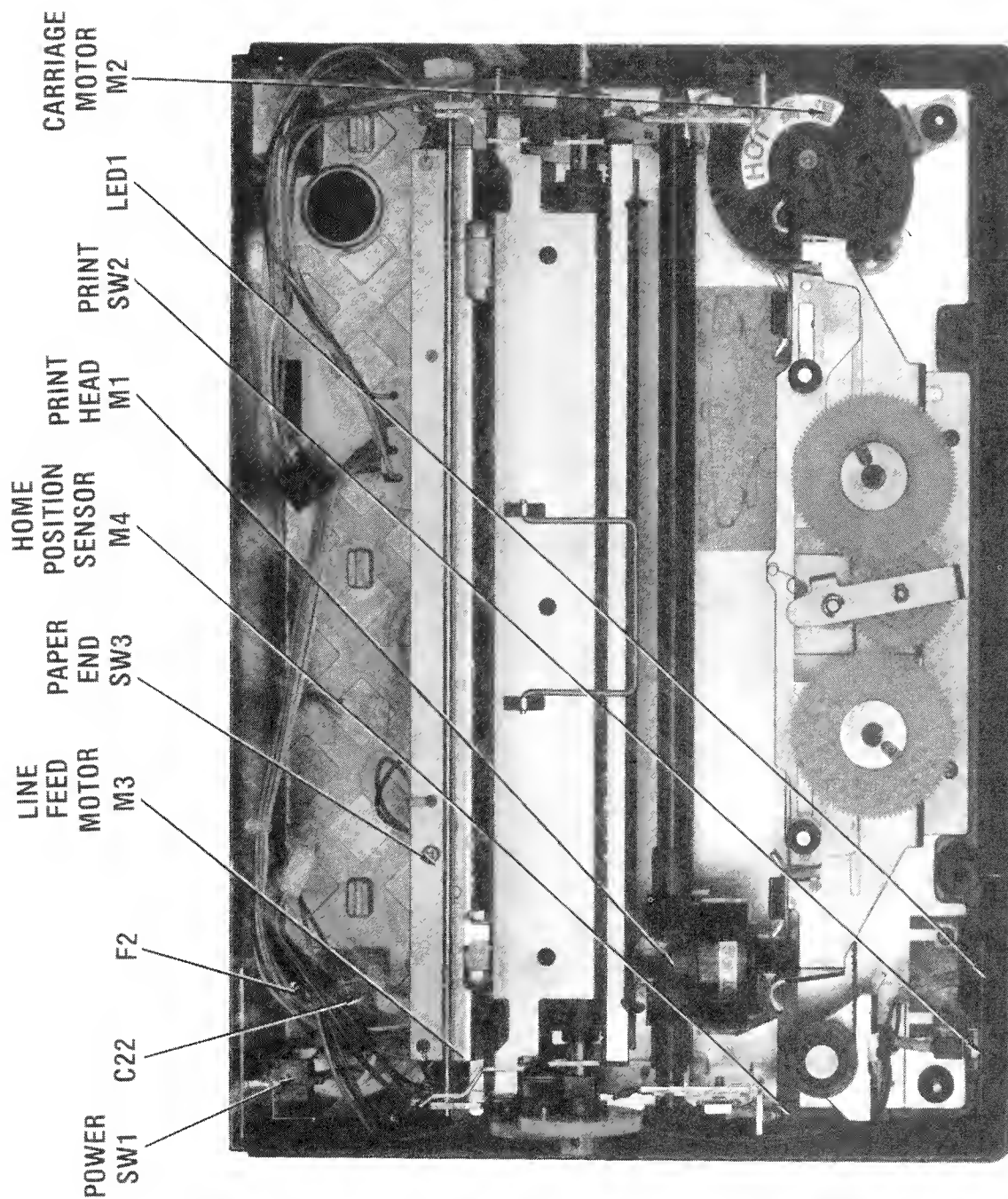


A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE**
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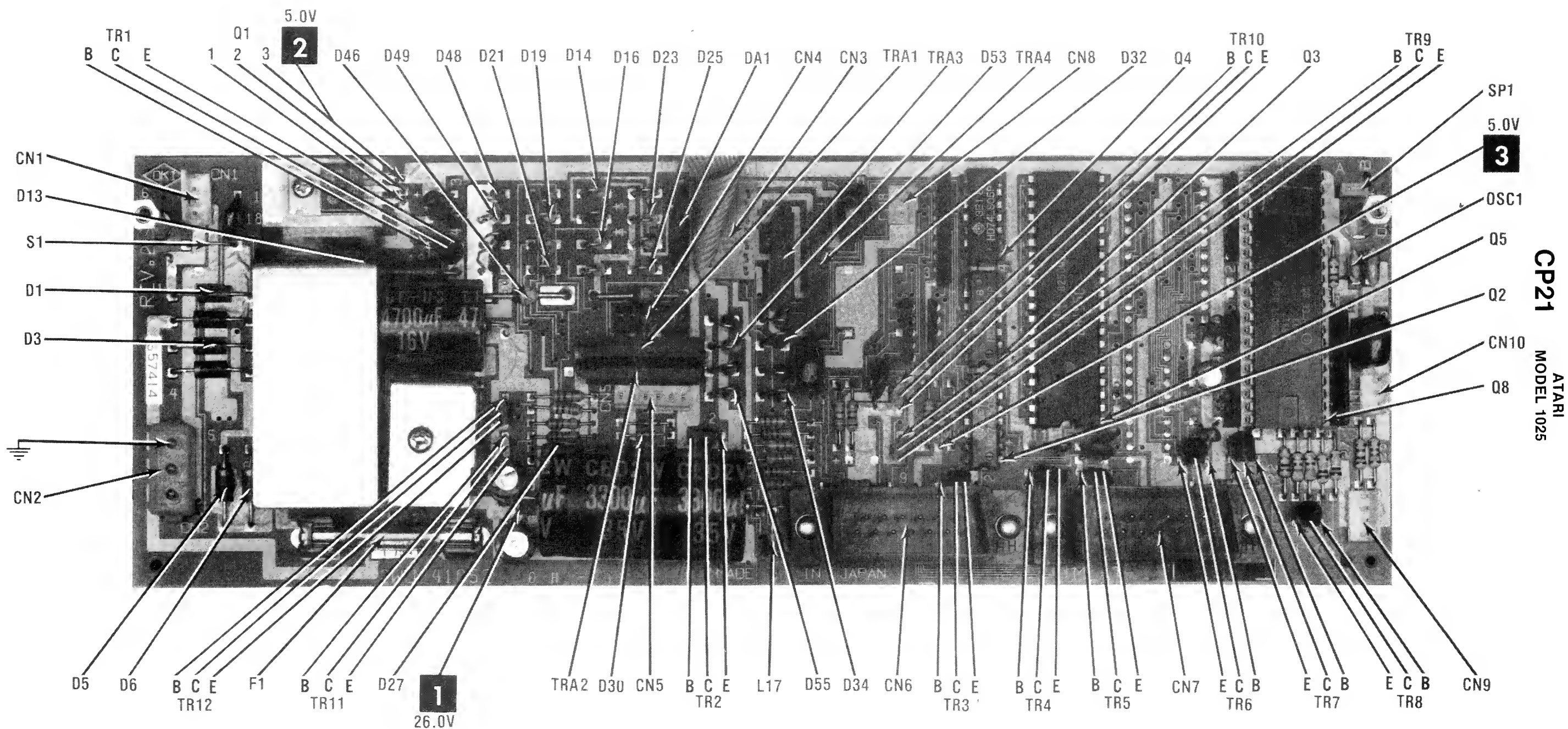
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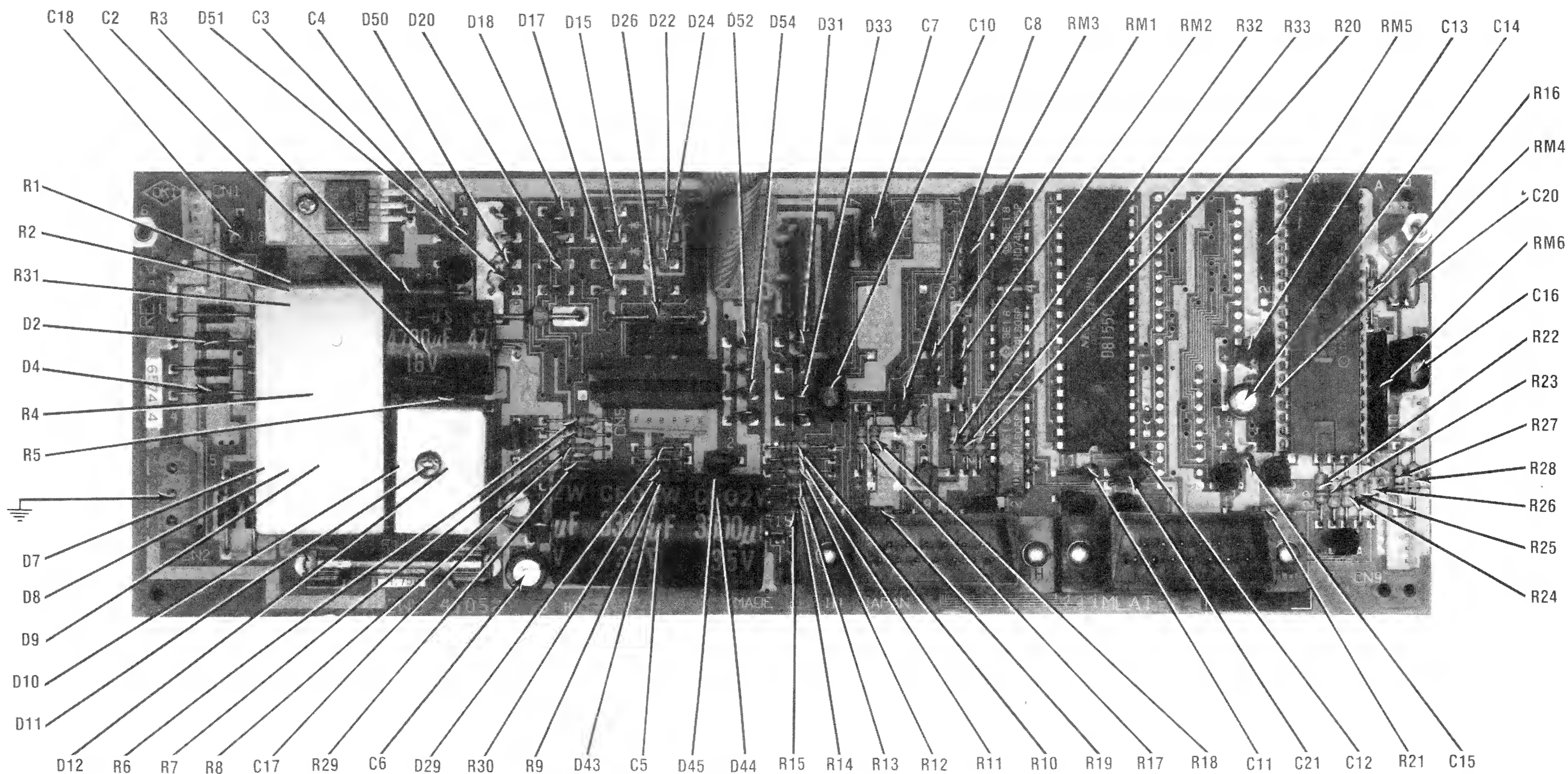
FOR TERMINAL GUIDES AND NOTES
SEE PAGE 13, 16



CHASSIS-TOP VIEW



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED



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PARTS LIST AND DESCRIPTION

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFR. PART No.	REPLACEMENT DATA				NOTES
			NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	
D1 thru D6 D7 D8,9 D10 D11,2	GP15B CSM2B2 M1Z SAME AS D7 SAME AS D8		NTE125 NTE116	ECG125 ECG116	SK3081/125 SK3311	903-334 212-76-02	
D13 D14 thru D25 D26 D27,8	24B2 M0Z 20 5.1B1		NTE5031A NTE116 NTE5135A NTE5010A	ECG5031A ECG116 ECG5135A ECG5010A	SK24A/5031A SK3313/116 SK20X/5135A SK5A1/5010A	103-212 212-76-02 103-279-10	
D29 D30 D31 thru D34 D43,4	6.2B2 SAME AS D14		NTE5013A NTE177	ECG5013A ECG177	SK6A2/5013A SK9091/177	103-Z9008 103-131	
D45 D46 D48 thru D55 DA1	5.1B2 SAME AS D26 SAME AS D14		NTE177 NTE5010A	ECG177 ECG5010A	SK9091/177 SK5A1/5010A	103-131 103-279-10	
Q1 Q2 thru Q4 Q5 Q6 Q7	HA17805P HD74LS05P D8155C		NTE177(6) NTE960 NTE74LS05 NTE74LS373 NTE2732(7)	ECG177(6) ECG960 ECG74LS05 ECG74LS373 ECG2732(7)	SK9091/177(6) SK3591/960 SK74LS05 SK74LS373	103-131(6) 221-Z9043 HE-443-818 HE-443-867	(1)
Q8 TR1,2 TR3 TR4 thru TR8	1P8051 (2S)C2719L (2S)A952M (2S)C2001K		NTE289A NTE290A NTE85	ECG289A ECG290A ECG85	SK3124A/289A SK3114A/290A SK3849/293	921-1114 121-Z9003* 921-1114	

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∞ PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFG. PART No.	REPLACEMENT DATA				NOTES
			NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	
TR9 thru TR12 TRA1,2 TRA3 TRA4	SAME AS TR1 STA403A STA303A SAME AS TRA1						

* Lead configuration may vary from original.

(6) 6 required; pin 4 is common anode for 6 diodes.

(1) May be used in some versions.

(7) Programming required.

WIRING DATA

Shielded Hook-up Wire	Use BELDEN No. 8401 or 8421 (Single-Conductor)
General-use Unshielded Hook-up Wire	8208 (Two-Conductor)
	8529 (Solid) Available in 13 Colors
	8522 (Stranded) Available in 13 Colors

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.
C3,C4	2.2uF 35V	
C11, C12	1uF 35V	

ITEM No.	RATING	MFGR. PART No.
C13 C15	2.2uF 35V 1uF 35V	

CAPACITORS

ITEM No.	RATING	MFGR. PART No.
C22	.1 250VAC	

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
RM1,RM2	Resistor Network (1)	IHR-4-102 (5)		
RM3	Resistor Network (2)	IHR-8-102JA (5)		
RM4	Resistor Network (3)	IHR-8-512JA (5)		
RM5	Resistor Network (4)	IHR-6-512 (5)		
RM6	Resistor Network (3)	IHR-8-512JA (5)		

- (1) Contains four (4 ea.) 1000 ohms.
 (2) Contains eight (8 ea.) 1000 ohms, 5%.
 (3) Contains eight (8 ea.) 5100 ohms, 5%.
 (4) Contains six (6 ea.) 5100 ohms.
 (5) On unit number.

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
F1,F2	1.75A @ 250V Fast-Acting			

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
T1	Power Transformer		4LP-45191-137	

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
L17	Ferrite Bead		
LED 1	LED		Power, Red
M1	Print Head		
M2	Carriage Motor		
M3	Line Feed Motor		
M4	Home Position Sensor		
OSC 1	Crystal		7.37MHz
SK	Network		
SW1	Switch		Power
SW2	Switch		Print
SW3	Switch		Paper End Detector

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TEST EQUIPMENT

Test Equipment listed by Manufacturer illustrates typical or equivalent equipment used by SAMS' Engineers to obtain measurements and is compatible with most types used by field service technicians.

TEST EQUIPMENT (COMPUTERFACTS)

Equipment Name	B & K Precision Equipment No.	Sencore Equipment No.	
OSCILLOSCOPE	1570A,1590A,1596	SC61	
LOGIC PROBE	DP51		
LOGIC PULSER	DP101		
DIGITAL VOM	2830	DVM37,DVM56,SC61	
ANALOG VOM	277		
ISOLATION TRANSFORMER	TR110,1604,1653,1655	PR57	
FREQUENCY COUNTER	1803,1805	FC71,SC61	
COLOR BAR GENERATOR	1211A,1248,1251,1260	CG25,VA62	
RGB GENERATOR	1260		
FUNCTION GENERATOR	3020		
HI-VOLTAGE PROBE VOM/DMM Accessory probes	HV-44	HP200	
TEMPERATURE PROBE	TP-28		
CRT ANALYZER	467,470	CR70	

TROUBLESHOOTING

POWER SUPPLY

If Printer is dead, check AC Fuse (F2). If Fuse F2 is open, check Diodes D5 and D6 for shorts. If Fuse F2 is good, check for 31.5V AC between pins 3 and 4 and 9.8V AC between pins 1 and 2 of Connector CN1. If voltages are not correct, check Power Transformer (T1), Power Switch (SW1) and AC Line Choke (RC).

Check for 26V at cathode of Diode D13. If voltage is not correct, check SCRs D7 and D10 and associated components.

Check for 10.5V at cathode of Diode D4. If voltage is missing check Fuse F1. If Fuse F1 is open, check Bridge Rectifiers (D1 thru D4), Voltage Regulator IC (Q1) and associated components.

LINE FEED MALFUNCTION

Turn platen knob by hand, if platen does not turn smoothly, check the gear assembly on the left side of the Printer. If platen turns smoothly, check resistance of Line Feed Motor (M3). Check for about 73 ohms between pins 1 and 5, pins 3 and 5, pins 2 and 6 and between pins 4 and 6 of Connector CN5. If Printer will not print while in self test mode, check

waveforms at pins 25 thru 28, and 33 thru 36 of Interface IC (Q5). If waveforms are missing, check IC Q5 and CPU IC (Q8) by substitution. If waveforms are present, check ICs Q3 and Q4 and Driver ICs TR1A and TR2A.

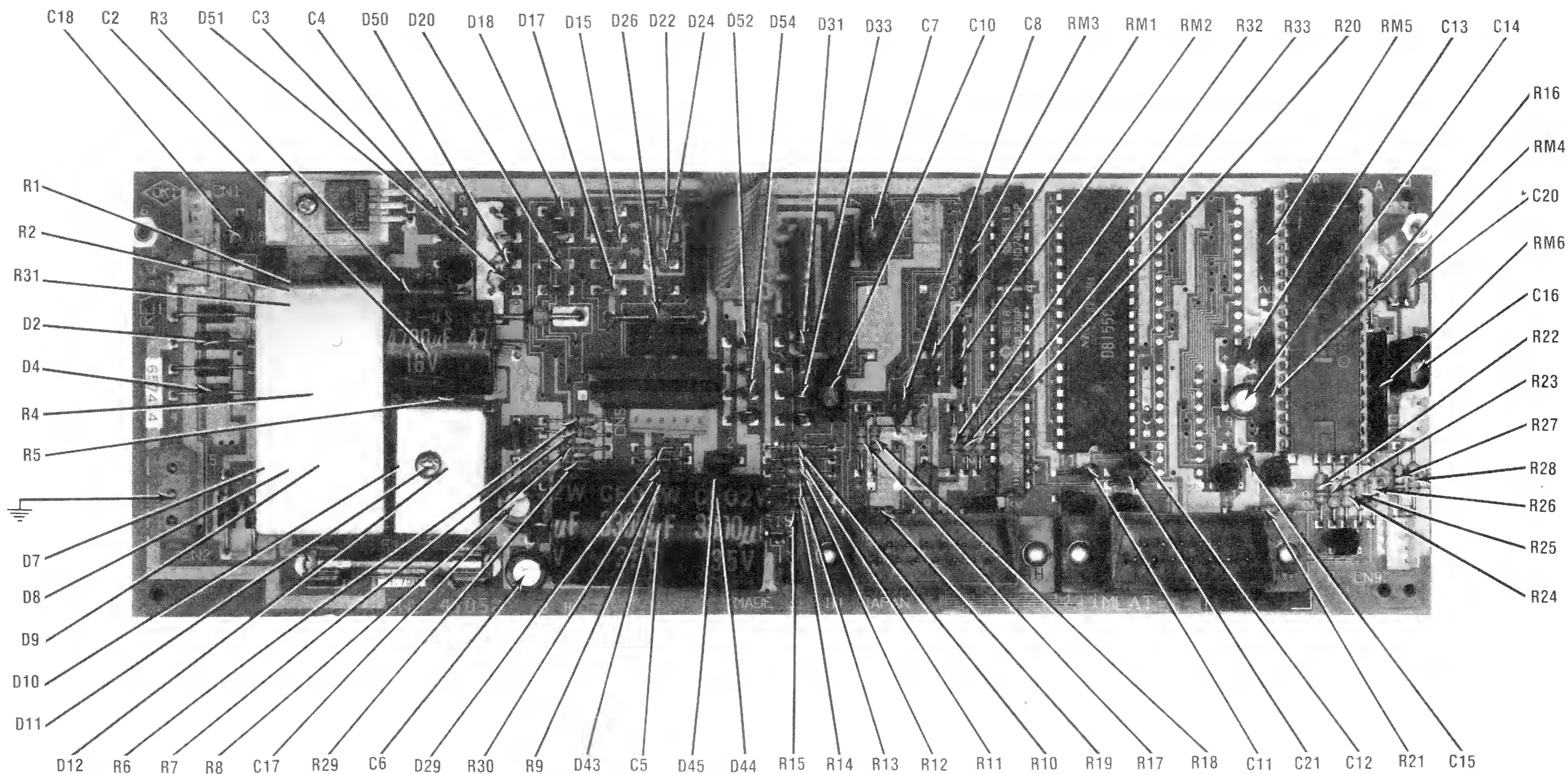
CARRIAGE ASSEMBLY DOES NOT MOVE

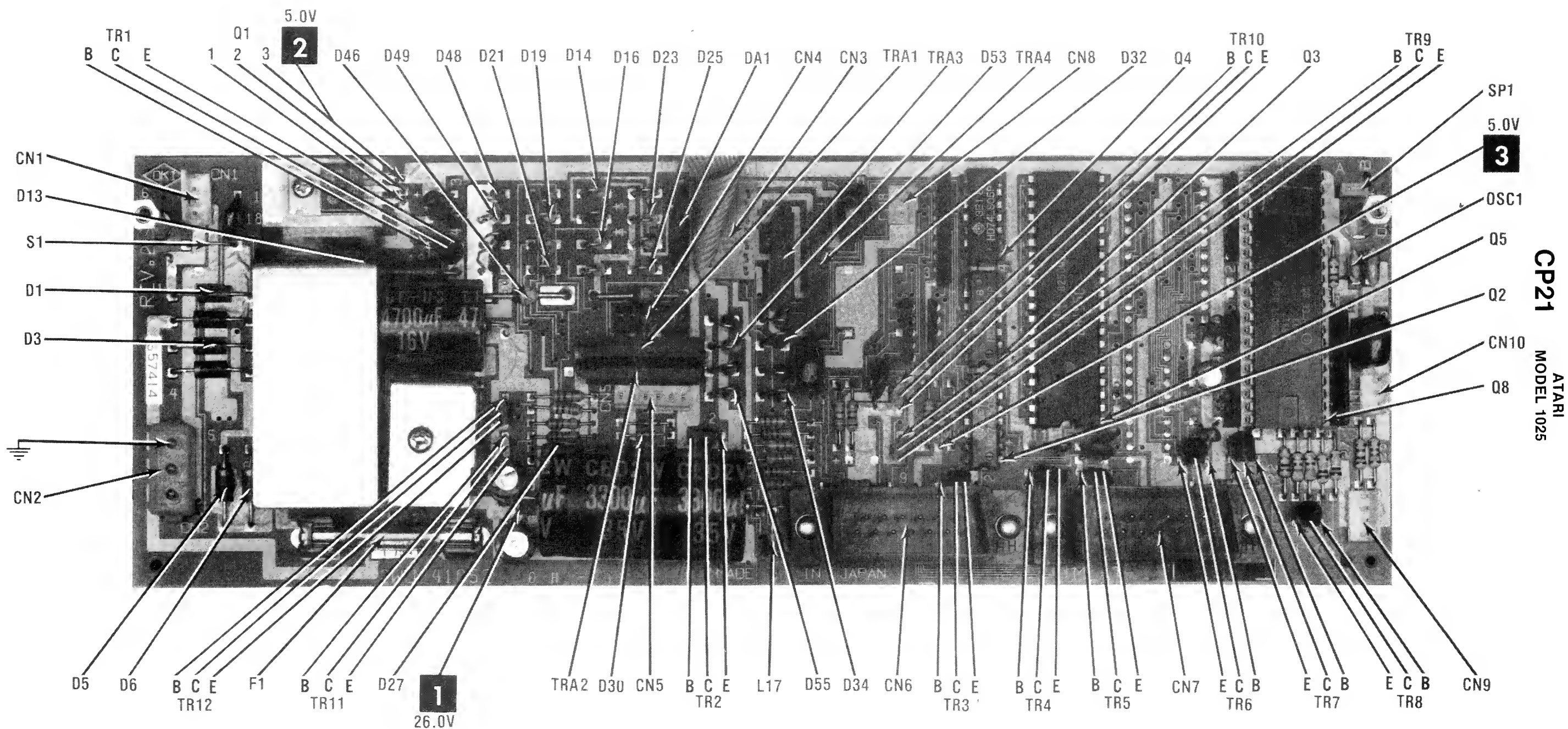
Check the resistance of the Carriage Motor (M2), check for 60 ohms between pins 5 and 1, pins 5 and 3, pins 6 and 2, and pins 6 and 4 of Connector CN4. If resistances are not correct replace Carriage Motor.

If the carriage assembly moves erratically check Home Position Sensor (M4). Check Connector CN10 for good connection. Check Interface IC (Q5) by substitution. Check IC Q4.

MISSING DOTS IN PRINT PATTERN

Actuate self test mode. Check for 26V P-P signal at pins 8 thru 14 of Connector CN3. If signal is present on all pins, check resistance of Print Head (M1). If 26V P-P signal is missing at any pin check CPU IC (Q8) by substitution. If signal is low about 5V P-P check Driver ICs (IRA3 and IRA4).





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NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED

LOGIC CHART

PIN NO.	IC Q2	IC Q3	IC Q4	PIN NO.	IC Q5	PIN NO.	IC Q5	PIN NO.	IC Q8	PIN NO.	IC Q8
1	H	H	P	1	L	21	L	1	P	21	H
2	L	L	L	2	H	22	H	2	P	22	H
3	H	P	P	3	L	23	H	3	P	23	H
4	L	L	L	4	L	24	H	4	P	24	H
5	H	P	P	5	H	25	P	5	P	25	L
6	L	L	L	6	L	26	P	6	P	26	L
7	L	L	L	7	H	27	P	7	P	27	H
8	L	L	L	8	P	28	P	8	H	28	P
9	P	P	P	9	P	29	H	9	L	29	H
10	L	L	L	10	P	30	H	10	L	30	P
11	P	P	P	11	P	31	H	11	H	31	H
12	L	L	L	12	P	32	H	12	H	32	P
13	P	P	P	13	P	33	P	13	L	33	P
14	H	H	H	14	P	34	P	14	L	34	P
				15	P	35	H	15	H	35	P
				16	P	36	P	16	P	36	P
17				17	P	37	L	17	P	37	P
18				18	P	38	H	18	P	38	P
19				19	P	39	H	19	P	39	P
20				20	L	40	H	20	L	40	H

SAFETY PRECAUTIONS

1. Use an isolation transformer for servicing.
2. Maintain AC line voltage at rated input.
3. Remove AC power from the Printer before servicing or installing electrostatically sensitive devices. Examples of typical ES devices are integrated circuits and semiconductors "chip" components.
4. Use extreme caution when handling the printed circuit boards. Some semiconductor devices can be damaged easily by static electricity. Drain off any electrostatic charge on your body by touching a known earth ground. Wear a commercially available discharging wrist strap device. This should be removed prior to applying power to the unit under test.
5. Use a grounded-tip, low voltage soldering iron.
6. Use an isolation (times 10) probe on scope.
7. Do not remove or install board, mechanical or electrical parts, or other peripherals with Printer AC power On.
8. Do not use freon-propelled sprays. These can generate electrical charges sufficient to damage semiconductor devices.
9. This Printer is equipped with a grounded three-pronged AC plug. This plug must fit into a grounded AC power outlet. Do not defeat the AC plug safety feature.
10. Periodically examine the AC power cord for damaged or cracked insulation.
11. The Printer cabinet is equipped with vents to prevent heat build-up. Never block, cover, or obstruct these vents.
12. Instructions should be given, especially to children, that objects should not be dropped or pushed into the vents of the cabinet. This could cause shock or equipment damage.
13. Never expose the Printer to water. If exposed to water turn the unit Off. Do not place the Printer near possible water sources.

SCHEMATIC NOTES

—*— Circuitry not used in some versions

--- Circuitry used in some versions

⊕ See parts list

⊕ Ground

Voltages measured with digital meter.

Waveforms and voltages are taken from ground, unless noted otherwise.

Voltages, waveforms and logic readings taken with Printer running in Self-Test mode.

Waveforms taken with triggered scope and Sweep/Time switch in Calibrate position, scope input set for DC coupling on "0" reference voltage waveforms. Switch to AC input to view waveforms after DC reference is measured when necessary. Each waveform is 7.5cm width with DC reference voltage given at the bottom line of each waveform.

Item numbers in rectangles appear in the alignment/adjustment instructions.

Supply voltage maintained as shown at input.

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

Capacitors are 50 volts or less, 5% unless noted.

Electrolytic capacitors are 50 volts or less, 20% unless noted.

Resistors are 1/2W or less, 5% unless noted.

Value in () used in some versions.

Measurements taken with switching as shown, unless noted.

ATARI
MODEL 1025

DISASSEMBLY INSTRUCTIONS

UPPER COVER REMOVAL

Remove platen knob, remove top cover by pulling upwards. Loosen two screws holding switch assembly and slide switch assembly backwards. Remove two screws from inside the front of upper cover. Tip upper cover back and lift upper cover from Printer.

PRINT HEAD REMOVAL

Remove upper cover, slide carriage assembly to right end of Printer. Carefully remove print head cable plug from flat cable connector located on the carriage assembly frame beneath the print head. Push down print head lock lever and lift head straight up from the carriage assembly frame.

PRINTER MECHANISM REMOVAL

Remove Printer upper cover. Slide carriage assembly to far right. Disconnect print head cable plug and remove print head. Remove the flat cable connector screw and the connector from carriage frame assembly. Cut plastic tie-wraps that fasten flat cable to side of printer mechanism. Disconnect all connectors attached to P.C. board. Remove P.C. board. Set Printer up side down on a soft cloth and remove four screws holding mechanism to the bottom of cabinet. Carefully remove bottom case and set printer mechanism upright.

MAIN CONTROL BOARD REMOVAL

Remove upper cover assembly. Disconnect all connectors from Main Control Board. Remove print head assembly. Remove flat cable connector from carriage frame assembly. Cut the tie-wrap which fastens the flat cable to the right side of printer mechanism. Remove two screws holding Main Control Board. Lift Main Control from Printer.

PLATEN REMOVAL

Remove cabinet top cover. Lift scale bar to highest position. Remove two screws holding paper separator and remove paper separator. Remove C ring and platen bearing from right end of platen. Pull left bearing side ways from side plate. Turn platen bearing 90° and pull out platen.

CARRIAGE MOTOR REMOVAL

Remove the upper cover. Remove the Main Control Board, disconnect Connector CN4. Cut the tie wraps securing the Carriage Motor leads. Remove two screws fastening the Carriage Motor to the bottom cover. Remove carriage belt from Carriage Motor pulley. Lift Carriage Motor from Printer.

PAPER FEED MOTOR REMOVAL

Remove upper case. Remove Main Control Board. Remove two phillips screws fastening Paper Feed Motor to left side of printer mechanism. Remove Paper Feed Motor from Printer.

MISCELLANEOUS ADJUSTMENTS

FIRST CHARACTER PRINTING POSITION ADJUSTMENT

Loosen screws fastening Carriage Motor to bottom cover. Turn motor assembly a little one way or the other so that when the power is turned ON, the print head returns and stops at the home sensor position within tolerance, see Figure 1. If changing position of motor assembly does not correct the print position, change the engagement position of the carriage synchro-belt on the pulley by one or two teeth.

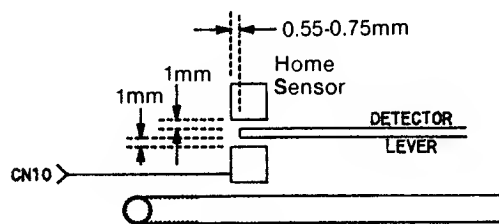


Figure 1

PLATEN/PAPER SEPARATOR ADJUSTMENT

Remove the upper cover, loosen the paper separator screws. Adjust the clearance between the platen and the paper separator for approximately 0.5mm. Tighten the paper separator screws, see Figure 2.

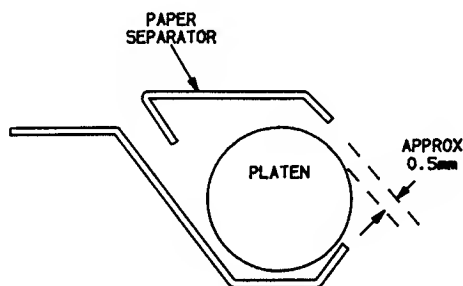


Figure 2

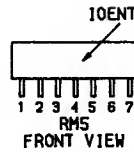
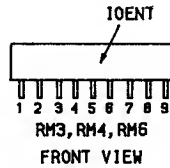
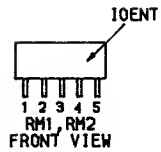
PRINthead ADJUSTMENT

Print head adjustment should be performed after repair of printer mechanism, carriage assembly frame, or print head. Loosen carriage shaft screws on the sides of the printer mechanism. Move carriage shaft forward or backward until gap between platen and print head is between 0.45mm and 0.5mm.

LINE DEFINITIONS

AD0 THRU AD7 Address Bus, Bits 0 Thru 7
COMMAND Input to Counter 0
DATA IN Serial Port's Receiver Data Input
DATA OUT Serial Port's Transmitted Data
P1.0 THRU P1.6 Port 1 Bit 0 Thru Port 1 Bit 6
5V READY Interrupt, Vectored to Service Program

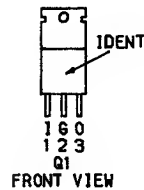
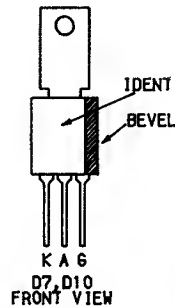
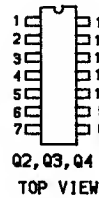
IC PINOUTS & TERMINAL GUIDES



08155C

1	PC3	VCC	40
2	PC4	PC2	39
3	TIMER IN	PC1	38
4	RESET	PC0	37
5	PC5	P87	36
6	TIMER OUT	P86	35
7	IO/M	P85	34
8	CE	P84	33
9	RD	P83	32
10	WR	P82	31
11	ALE	P81	30
12	AD0	P80	29
13	AD1	PA7	28
14	AD2	PA6	27
15	AD3	PA5	26
16	AD4	PA4	25
17	AD5	PA3	24
18	AD6	PA2	23
19	AD7	PA1	22
20	GND	PA0	21

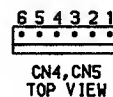
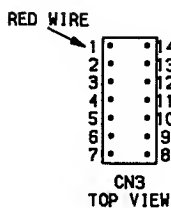
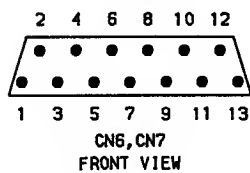
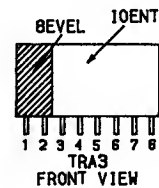
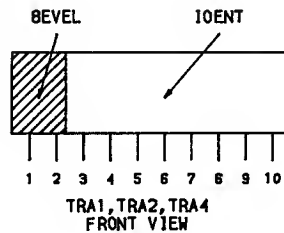
Q5
SRAM
TOP VIEW

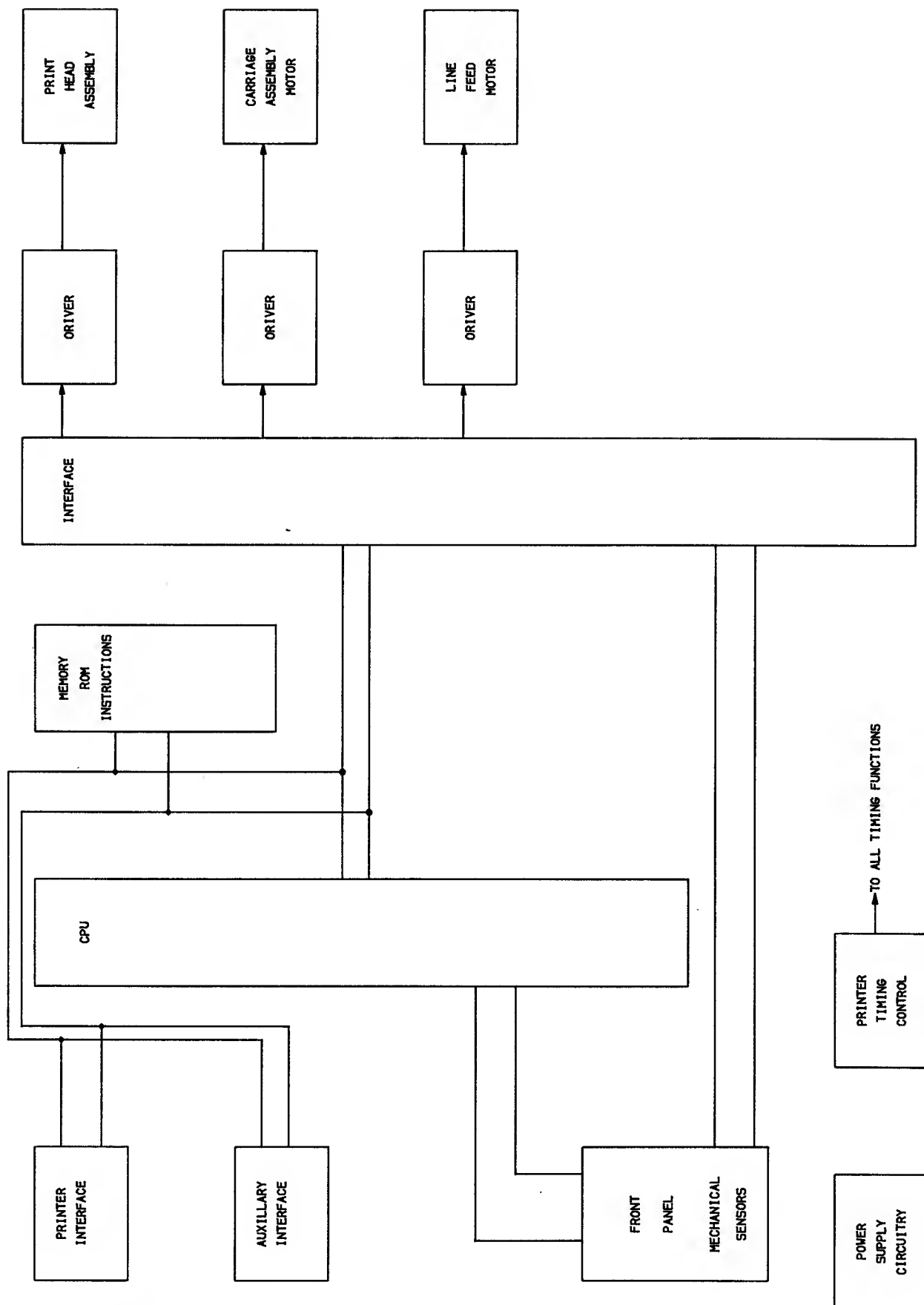


IP8051

1	P1.0	VCC	40
2	P1.1	P0.0	39 (AD0)
3	P1.2	P0.1	38 (AD1)
4	P1.3	P0.2	37 (AD2)
5	P1.4	P0.3	36 (AD3)
6	P1.5	P0.4	35 (AD4)
7	P1.6	P0.5	34 (AD5)
8	P1.7	P0.6	33 (AD6)
9	RST/VPD	P0.7	32 (AD7)
10	P3.0	EA/VDD	31
11	P3.1	ALE/PROG	30
12	P3.2	PSEN	29
13	P3.3	P2.7	28 (A15)
14	P3.4	P2.6	27 (A14)
15	P3.5	P2.5	26 (A13)
16	P3.6	P2.4	25 (A12)
17	P3.7	P2.3	24 (A11)
18	XTAL2	P2.2	23 (A10)
19	XTAL1	P2.1	22 (A9)
20	GND	P2.0	21 (A8)

Q8
CPU
TOP VIEW





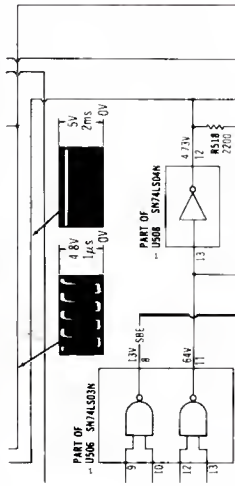
BLOCK DIAGRAM

Remove staples and use cover for file folder.

COMPUTERFACTS™ put easy to use, informative technical data right at your fingertips. Each edition includes specific service information on the individual component, along with some overall troubleshooting hints.

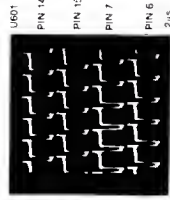
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- Preliminary Service Checks section is an easy to use, step by step guide for the experienced technician or hobbyist, and even beginners.
- SAMS famous industry accepted standardized notation schematics containing CIRCUI TRACE[®], GRID TRACE[™], waveforms, voltages and stage identification.



- Step by Step Troubleshooting guides the technician through the necessary procedures to quickly locate the problem.

TROUBLESHOOTING



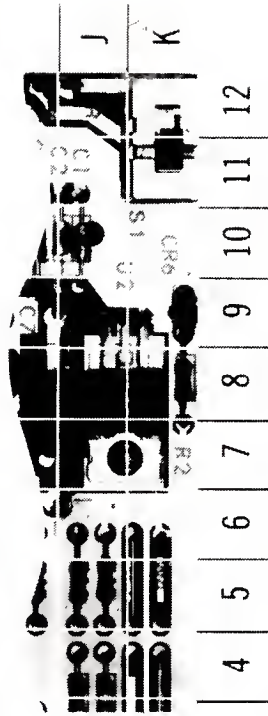
MICROPROCESSOR CHIP (CPU) OPERATION

Verify the processor is functioning by checking the signals on the address lines (pins 10 thru 24 of IC U600) and the data lines (pins 41 thru 56) using a logic probe or a scope. If a logic probe is used, refer to the "Logic Chart" for the correct readings. If a scope is used, the waveforms on the address lines (except pins 22 and 23 which have no signal in PowerUp mode) should be similar to Figure 1. The waveforms on the data lines should be similar to Figure 2.

- Logic Chort containing logic probe readings to isolate defective circuitry and components.

PIN NO.	IC U100	PIN NO.	IC U100	PIN NO.	IC U102	IC U103	IC U104	IC U105	IC U106	IC U107	IC U108	IC U109
1	P	21	P	1	L	L	L	L	L	L	L	L
2	P	22	P.	2	L	P	P	P	P	P	P	P
3	P	23	P.	3	P	H	H	H	H	H	H	H

- Quick Component Location using the SAMS exclusive GRIDTRACE, CIRCUITRACE, and component photographs.



- Complete Components Parts List in an easy to use format with field replacements shown when possible. SAMS unique semiconductor, chip and IC cross-reference gives you many replacements to choose from and is available at your Electronic Distributor.

SEMICONDUCTORS (Select replacement for best results)

ITEM No	TYPE	MFGR PART No.	REPLACEMENT DATA						ZENITH PART No.
			ECG PART No	GENERAL ELECTRIC PART No	MOTOROLA PART No.	NTE PART No.	RCA PART No	WORKMAN PART No.	
D102	15553	1149-2576	EC9519	GE-514	1N4935	NTE519	SK9091/177	MEP925/519	103-131
D201	15553	1149-2576	EC9519	GE-514	1N4935	NTE519	SK9091/177	MEP925/519	103-131
D203	15553	1201-4205	EC9516	GE-504A	1N4004	NTE116	SK3312	MEP134/109	103-76-02
0501 thru 0503	15553	1149-2576	EC9519	GE-514	1N4935	NTE519	SK9091/177	MEP925/519	103-131

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